

Results: A total of 133 critical care nurses were observed for oral care compliance, and a total of 759 oral care opportunities were observed, including 278 opportunities at the end of the day shift, 267 at the end of the evening shift, and 214 at the end of the night shift. The overall compliance rate was 83.3%. Compliance with performing oral care was significantly higher among nurses aged > 30 years, male nurses, nurses with higher academic degrees, team leaders, senior RNs, and ICU licensed nurses than among nurses ≤ 30 years, female nurses, nurses with lower academic degrees, non-team leaders, junior RNs, and non-ICU licensed nurses (all $P < 0.05$). In contrast, years of experience in critical care settings and VAP-associated education were not associated with oral care compliance. Results of the multivariate analysis disclosed that age, academic degree, ICU license, and location were independently associated with oral care compliance.

Conclusions: Oral care compliance varied among nurses. Larger scale surveillance studies are needed to identify the factors associated with compliance among nurses with performing oral care for patients on mechanical ventilation.

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EVALUATION OF A CHLORINE DIOXIDE WATER TREATMENT SYSTEM TO CONTROL LEGIONELLA SPECIES IN A HOSPITAL WATER SYSTEM

Yao-Ru Tseng^a, Tsen - Lu Cho^b, Kuei-Chu Li^b, Hsiu-Shen Lin^a, Kao-Pin Hwang^{b,c}, Ni Tien^a. ^aDepartment of Laboratory Medicine, Department of Medical Laboratory Science and Biotechnology, Taiwan; ^bCommittee of Infection Control, Taiwan; ^cDivision of Pediatric Infectious Disease, Department of Pediatrics, China Medical University Hospital, China Medical University School Medicine, Taichung, Taiwan

Purpose: The contamination of the water supply system by *Legionella*, so often results in health care associated pneumonia events. In order to exclude the pathogens in the water supply system, often used in medical institutions of copper and silver ions exchange, chlorine dioxide, ozone or single filters and other disinfection methods. With expert recommendations, reference literature, and take into some issues such as hospital facilities and the building position, we use chlorine dioxide disinfection methods for water disinfection in hospitals.

Methods: We monitored the *Legionella* colonies in the chilled water system. A medical center in central Taiwan since January 2013, in hospital water systems began to routinely monitor growing concentration of *Legionella*. In April of 2013 began the installation of chlorine dioxide produced machines system, maintaining the concentration of chlorine dioxide in hospital water systems. Water samples were collected for *Legionella* enumeration by a standardized culture method. Routine environmental cultures were performed to evaluate the efficacy.

Results: From January 2013 the detection rate was 20%, by 2014 to July, had 16 consecutive months with no detectable *Legionella*.

Conclusions: According to our monitoring results indicate that chlorine dioxide disinfection method used in chilled water system of hospital had the effectiveness of control *Legionella*. By treatment using ClO₂, we could control *Legionella* colonization rate in the test building.

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ROLE OF LABORATORY IN DETECTION, EFFECTIVE MANAGEMENT AND CONTROL OF OUTBREAKS OF HOSPITAL ASSOCIATED INFECTIONS

Terrence R. Chinniah, Kavitha Prabu, Amalina Sidek, Rashidah Ahamed. Division of Microbiology, Department of Pathology, Raja Isteri Pengiran Anak Saleha (RIPAS) Hospital, Bandar Seri Begawan, Brunei Darussalam, Brunei

Purpose: Laparoscopic cholecystectomy reduces morbidity, mortality and duration of stay. Laparoscope is delicate with multiple channels, hence cleaning and sterilization is tedious. If not done properly it can be a source of cross infection among patients.

Methods: All gall bladders removed by laparoscopic cholecystectomy are sent to microbiological laboratory. They are cultured according to routine laboratory methods and isolated organisms are identified by VITEK 2, API20E and API20NE. Antibiotic sensitivity is performed according to Clinical Laboratory Standard Institute (CLSI) guidelines

Results: During the period from March 2012 occasional isolations of *Serratia marcescens* went unnoticed. In September 2012, within a span of 20 days, *Serratia marcescens* were isolated from eight gall bladders following laparoscopic cholecystectomy. One of these 8 patients was re-admitted with surgical site infection with *Serratia marcescens* and another patient who didn't grow *Serratia marcescens* from the removed gall bladder was admitted with *Serratia marcescens* septicemia. Similar antibiogram of all these isolates lead to a suspicion of an outbreak.

This was investigated and infection control practices including cleaning, disinfection and sterilization of endoscopes were revisited and performed. Environmental samples and specimens sent from the endoscopes and solutions were negative for *Serratia marcescens* prior and after the intervention. Following these interventions no single *Serratia marcescens* was isolated from laparoscopic cholecystectomy patients to date.

Conclusion: Meticulous vigilant monitoring of isolates from specimens can help to identify an outbreak and will help the infection control unit to control it. Hence the role of laboratory in identifying them early is essential. Though environmental samples and specimens sent from the endoscopes and solutions were negative, the absence of *Serratia marcescens*, to date, from any specimens following laparoscopic cholecystectomy, emphasis the need of proper cleaning disinfection and sterilization. Continuous education on infection control policies and monitoring of the aseptic preparation are necessary for personnel involved.

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IS TIGECYCLINE PRESCRIBED TO TREAT CARBAPENEM-RESISTANT ACINETOBACTER BAUMANNII COMPLICATED URINARY TRACT INFECTIONS

Chao-Tai Lee^a, Hung-Ming Chu^a, Chin-Lu Chang^b. ^aDepartment of Clinical laboratory, Taiwan; ^bCommittee of Infection Control, Tainan Municipal Hospital, Tainan, Taiwan

Purpose: In general, carbapenem-resistant *Acinetobacter baumannii* (CRAB) is resistant most of antibiotics, except tigecycline and colistin. Colistin has nephrotoxicity, so it is inappropriate antibiotic in some conditions, such as in patients with renal impairment. Tigecycline has low urinary concentration, so it is not usually recommended to treat complicated urinary tract infections (cUTI). Hence, in case of CRAB cUTI, the treatment options are severe limited. In this study, we reported two cases of CRAB cUTI successfully treated with two different dose of tigecycline.

Methods: We reported two cases of CRAB cUTI treated with tigecycline, 50 mg and 100 mg, respectively, every 12 hours for 14 days. Standard disk diffusion method was used for antimicrobial susceptibility testing. The interpretation of tigecycline against *A. baumannii* isolates was according to the U.S. Food and Drug Administration interpretive criteria for Enterobacteriaceae (susceptible, minimal inhibitory concentration ≤ 2 µg/ml).

Results: The two *A. baumannii* isolates were only susceptible to tigecycline (colistin was not tested). The two cases of CRAB cUTI treated with tigecycline were clinical treatment success; however, both repeated urine cultures were still positive with CRAB.

Conclusions: As the above mentioned, the treatment options for CRAB cUTI are limited. In our option, tigecycline may be prescribed to treat CRAB cUTI, especially in case of no other appropriate antibiotics available. The reason of clinical treatment success may be tigecycline having good renal concentration. In contrast, the reason of being unable to eradicate CRAB may be it having low urinary concentration.

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THE HEALTH-CARE ASSOCIATED INFECTION IN VENTILATOR-DEPENDENT PATIENTS: THE IMPACT OF WEANING

Shu-Chien Liang^a, Mei-Ju Chi^b, Ming-Han Tsai^c, You-Lan Yang^d. ^aKeelung Hospital, Ministry of Health and Welfare, Taiwan; ^bTaipei Medical University, Taiwan; ^cChang Gung Memorial Hospital, Taiwan; ^dTaipei Medical University, Taiwan

Purpose: According to the National Health Insurance Administration, there were 11,573 people dependent ventilator. The Huge medical costs, and 70–80% of patients are unconscious, and the cost of waste caused an invalid medical controversy. Therefore, improving the prognosis of ventilator-